

**LISTING OF THE CLAIMS**  
**(including amendments, if any)**

1. **(currently amended)** A method for optimizing processing of a request, ~~the request having elements, the request including one or more predicates, each predicate referencing one or more relations,~~ the method including:

~~selecting an access path for the request taking into consideration a stored actual request element cost;~~

identifying the relations in the request;

identifying one or more access paths for each relation;

extracting the predicates from the request;

for each predicate,

associating the predicate with the one or more access paths identified for the one or more relations referenced in the predicate;

estimating the cost of one or more access paths associated with the predicate;

and

for each access path,

selecting the cheaper of the estimated access path cost and an actual access path cost, if one exists;

processing the request using the selected access path, producing one or more actual path request element costs; and

storing the one or more actual access path request element costs.

2. **(cancelled)**

3. **(currently amended)** The method of claim **[[2]] 1** where estimating the cost of one or more access paths includes:

retrieving estimated costs stored in a data dictionary.

4. **(currently amended)** The method of claim **[[2]] 1** where estimating the cost of one or more access paths includes:

performing selectivity costing based on one or more of selectivity, cardinality and statistics.

5. **(currently amended)** The method of claim ~~[[2]]~~ **1** where selecting an access path further includes:

for each predicate,

selecting the lowest cost access path from among the access paths associated with each predicate.

6. **(currently amended)** The method of claim 1 where requests are sorted into workload groups and the method further includes:

categorizing the actual access path ~~request-element~~ costs according to the workload group to which the request belongs.

7. **(currently amended)** The method of claim 6 where selecting an access path for the request taking into consideration a stored actual access path ~~request-element~~ cost includes:

taking into consideration the categorized actual access path ~~request-element~~ cost, if it exists, for the workload group to which the request belongs.

8. **(currently amended)** The method of claim 1 where storing the one or more actual request element costs includes:

storing the one or more actual access path ~~request-element~~ costs in a cache.

9. **(currently amended)** The method of claim 1 where storing the one or more actual access path ~~request-element~~ costs includes:

backing up the stored one or more actual access path ~~request-element~~ costs from the cache to a query capture data base.

10. **(currently amended)** The method of claim 1 further including:

assigning the request to an one of a plurality of workload groups; and

where selecting an access path for the request includes taking into consideration a stored actual access path ~~request-element~~ cost if the one of the plurality of workload groups is identified for such processing; and

where selecting an access path for the request does not include taking into consideration a stored actual access path ~~request-element~~ cost if the one of the plurality of workload groups is not identified for such processing.

11. **(currently amended)** The method of claim 10 where storing the one or more actual request element costs includes:

performing a workload analysis to associate each actual access path request element cost with the workload group to which the request is assigned.

12. (original) The method of claim 11 where performing the workload analysis includes:

performing at least a portion of the workload analysis off-line.

13. (original) The method of claim 11 where performing the workload analysis includes:

performing at least a portion of the workload analysis in real time.

14. (original) The method of claim 1 further including:

creating one or more workload groups; and

assigning the request to one of the one or more workload groups.

15. **(currently amended)** A method for optimizing processing of a workload group, the workload group including one or more requests, ~~each request having elements, at least one of the requests including one or more predicates, each predicate referencing one or more relations~~ the method including:

~~selecting an access path for a request taking into consideration a stored actual request element cost, categorized by workload group;~~

identifying the relations in the at least one request request;

identifying one or more access paths for each relation;

extracting the predicates from the request;

for each predicate,

associating the predicate with the one or more access paths identified for the one or more relations referenced in the predicate;

estimating the cost of one or more access paths associated with the predicate;

and

for each access path,

selecting the cheaper of the estimated access path cost and an actual access path cost associated with the workload group, if one exists;

processing the request using the selected access path, producing one or more actual access path ~~request element~~ costs; and  
 storing the one or more actual access path ~~request element~~ costs, categorized by workload group.

16. (cancelled)

17. (currently amended) The method of claim ~~[[16]]~~ 15 where estimating the cost of one or more access paths includes:

retrieving estimated costs stored in a data dictionary.

18. (currently amended) The method of claim ~~[[16]]~~ 15 where estimating the cost of one or more access paths includes:

performing selectivity costing based on one or more of selectivity, cardinality and statistics.

19. (currently amended) The method of claim ~~[[16]]~~ 15 where selecting an access path further includes:

for each predicate,

selecting the lowest cost access path from among the access paths associated with each predicate.

20. (currently amended) The method of claim 15 where the method further includes:

categorizing the actual access path ~~request element~~ costs according to the workload group to which the request belongs.

21. (currently amended) The method of claim 20 where selecting an access path for the request taking into consideration a stored actual access path ~~request element~~ cost includes:

taking into consideration the categorized actual access path ~~request element~~ cost, if it exists, for the workload group to which the request belongs.

22. (currently amended) The method of claim 15 where storing the one or more actual request element costs includes:

storing the one or more actual access path ~~request element~~ costs in a cache.

23. **(currently amended)** The method of claim 15 where storing the one or more actual access path request element costs includes:

backing up the stored one or more actual access path request element costs from the cache to a query capture data base.

24. **(currently amended)** The method of claim 15 further including:

where selecting an access path for the request includes taking into consideration a stored actual access path request element cost if the ~~one of the plurality of~~ workload group[[s]] is identified for such processing; and

where selecting an access path for the request does not include taking into consideration a stored actual access path request element cost if ~~one of the plurality of~~ workload group[[s]] is not identified for such processing.

25. **(currently amended)** The method of claim 24 where storing the one or more actual request element costs includes:

performing a workload analysis to associate each actual access path request element cost with the workload group to which the request is assigned.

26. **(currently amended)** The method of claim 25 where performing the workload analysis includes:

performing at least a portion of the workload analysis off-line.

27. (original) The method of claim 25 where performing the workload analysis includes:

performing at least a portion of the workload analysis in real time.

28. **(currently amended)** A computer program, stored on a tangible storage medium, for use in optimizing processing of a request, ~~the request having elements,~~ the request including one or more predicates, each predicate referencing one or more relations, the program including executable instructions that cause a computer to:

~~select an access path for the request taking into consideration a stored actual request element cost;~~

identify the relations in the request;

identify one or more access paths for each relation;

extract the predicates from the request;

for each predicate,

associate the predicate with the one or more access paths identified for the one or more relations referenced in the predicate;

estimate the cost of one or more access paths associated with the predicate; and

for each access path,

select the cheaper of the estimated access path cost and an actual access path cost, if one exists;

process the request using the selected access path, producing one or more actual access path request element costs; and

store the one or more actual access path request element costs.

29. (cancelled)

30. (currently amended) The computer program of claim ~~[[29]]~~ 28 where when estimating the cost of one or more access paths the computer:

retrieves estimated costs stored in a data dictionary.

31. (currently amended) The computer program of claim ~~[[29]]~~ 28 where when estimating the cost of one or more access paths the computer:

performs selectivity costing based on one or more of selectivity, cardinality and statistics.

32. (currently amended) The computer program of claim ~~[[29]]~~ 28 where when selecting an access path the computer further:

for each predicate,

selects the lowest cost access path from among the access paths associated with each predicate.

33. (currently amended) The computer program of claim 28 where requests are sorted into workload groups and the computer program further includes executable instructions that cause the computer to:

categorize the actual access path request element costs according to the workload group to which the request belongs.

34. **(currently amended)** The computer program of claim 33 where when selecting an access path for the request taking into consideration a stored actual access path ~~request element~~ cost the computer:

takes into consideration the categorized actual access path ~~request element~~ cost, if it exists, for the workload group to which the request belongs.

35. **(currently amended)** The computer program of claim 28 where when storing the one or more actual request element costs the computer:

stores the one or more actual access path ~~request element~~ costs in a cache.

36. **(currently amended)** The computer program of claim 28 where when storing the one or more actual request element costs the computer:

backs up the stored one or more actual access path ~~request element~~ costs from the cache to a query capture data base.

37. **(currently amended)** The computer program of claim 28 further including executable instructions that cause a computer to:

assign the request to an one of a plurality of workload groups;

where when selecting an access path for the request, the computer takes into consideration a stored actual access path ~~request element~~ cost if the one of the plurality of workload groups is identified for such processing; and

where when selecting an access path for the request, the computer does not include take into consideration a stored actual access path ~~request element~~ cost if the one of the plurality of workload groups is not identified for such processing.

38. **(currently amended)** The computer program of claim 37 where when storing the one or more actual access path ~~request element~~ costs the computer:

performs a workload analysis to associate each actual access path ~~request element~~ cost with the workload group to which the request is assigned.

39. (original) The computer program of claim 38 where when performing the workload analysis the computer:

performs at least a portion of the workload analysis off-line.

40. (original) The computer program of claim 38 where when performing the workload analysis the computer:

performs at least a portion of the workload analysis in real time.

41. (original) The computer program of claim 28 further including executable instructions that cause a computer to:

create one or more workload groups; and

assign the request to one of the one or more workload groups.

42. (**currently amended**) A database system including:

a massively parallel processing system including:

one or more nodes;

a plurality of CPUs, each of the one or more nodes providing access to one or more CPUs;

a plurality of data storage facilities each of the one or more CPUs providing access to one or more data storage facilities;

a process for execution on the massively parallel processing system for optimizing processing of a request, ~~the request having elements, the request including one or more predicates, each predicate referencing one or more relations,~~ the process including:

~~selecting an access path for the request taking into consideration a stored actual request element cost;~~

identifying the relations in the request;

identifying one or more access paths for each relation;

extracting the predicates from the request;

for each predicate,

associating the predicate with the one or more access paths identified for the one or more relations referenced in the predicate;

estimating the cost of one or more access paths associated with the predicate;

and

for each access path,



**selecting the cheaper of the estimated access path cost and an actual access path cost, if one exists;**

processing the request using the selected access path, producing one or more actual **access path request element** costs; and  
storing the one or more actual **access path request element** costs.

43. (cancelled)

44. (currently amended) The database system of claim ~~[[43]]~~ **42** where estimating the cost of one or more access paths includes:

retrieving estimated costs stored in a data dictionary.

45. (currently amended) The database system of claim ~~[[43]]~~ **42** where estimating the cost of one or more access paths includes:

performing selectivity costing based on one or more of selectivity, cardinality and statistics.

46. (currently amended) The database system of claim ~~[[43]]~~ **42** where selecting an access path further includes:

for each predicate,

selecting the lowest cost access path from among the access paths associated with each predicate.

47. (currently amended) The database system of claim 42 where requests are sorted into workload groups and the process further includes:

categorizing the actual **access path request element** costs according to the workload group to which the request belongs.

48. (currently amended) The database system of claim 47 where selecting an access path for the request taking into consideration a stored actual **access path request element** cost includes:

taking into consideration the categorized actual **access path request element** cost, if it exists, for the workload group to which the request belongs.

49. **(currently amended)** The database system of claim 42 where storing the one or more actual access path ~~request element~~ costs includes:

storing the one or more actual access path ~~request element~~ costs in a cache.

50. **(currently amended)** The database system of claim 42 where storing the one or more actual access path ~~request element~~ costs includes:

backing up the stored one or more actual access path ~~request element~~ costs from the cache to a query capture data base.

51. **(currently amended)** The database system of claim 42 where the process further includes:

assigning the request to an one of a plurality of workload groups; and

where selecting an access path for the request includes taking into consideration a stored actual access path ~~request element~~ cost if the one of the plurality of workload groups is identified for such processing; and

where selecting an access path for the request does not include taking into consideration a stored actual access path ~~request element~~ cost if the one of the plurality of workload groups is not identified for such processing.

52. **(currently amended)** The database system of claim 51 where storing the one or more actual access path ~~request element~~ costs includes:

performing a workload analysis to associate each actual access path ~~request element~~ costs with the workload group to which the request is assigned.

53. (original) The database system of claim 52 where performing the workload analysis includes:

performing at least a portion of the workload analysis off-line.

54. (original) The database system of claim 52 where performing the workload analysis includes:

performing at least a portion of the workload analysis in real time.

55. (original) The database system of claim 42 where the process further includes:

creating one or more workload groups; and

assigning the request to one of the one or more workload groups.

56. (original) The database system of claim 42 further comprising a plurality of additional process for optimizing processing of a request.